<110> WEI, Ming-Hui, et al

<120> ISOLATED HUMAN KINASE PROTEINS, NUCLEIC
ACID MOLECULES ENCODING HUMAN KINASE PROTEINS, AND USES
THEREOF

<130> CL000927-CIP-DIV2

<140> To be assigned
<141> 2003-10-31

<150> 10/274,978
<151> 2002-10-22

<150> 09/858,664
<151> 2001-05-17

<150> 09/711,134
<151> 2000-11-14

<160> 34

<170> FastSEQ for Windows Version 4.0

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2

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<211> 1665
<212> PRT
<213> Homo sapiens

<400> 2

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His Pro Gly Leu Cys Gly Trp Gly Gly Gly Leu His Ser Ser Leu Pro
         35                  40                  45
Ala Leu Pro Gly Pro Pro Ser Met Gln Val Thr Ile Glu Asp Val Gln
     50                  55                  60
Ala Gln Thr Gly Gly Thr Ala Gln Phe Glu Ala Ile Ile Glu Gly Asp
65                  70                  75                  80
Pro Gln Pro Ser Val Thr Trp Tyr Lys Asp Ser Val Gln Leu Val Asp
                 85                  90                  95
Ser Thr Arg Leu Ser Gln Gln Gln Glu Gly Thr Thr Tyr Ser Leu Val
                100                 105                 110
Leu Arg His Val Ala Ser Lys Asp Ala Gly Val Tyr Thr Cys Leu Ala
             115                 120                 125
Gln Asn Thr Gly Gly Gln Val Leu Cys Lys Ala Glu Leu Leu Val Leu
         130                 135                 140
Gly Gly Asp Asn Glu Pro Asp Ser Glu Lys Gln Ser His Arg Arg Lys
145                 150                 155                 160
Leu His Ser Phe Tyr Glu Val Lys Glu Glu Ile Gly Arg Gly Val Phe
                 165                 170                 175
Gly Phe Val Lys Arg Val Gln His Lys Gly Asn Lys Ile Leu Cys Ala
             180                 185                 190
Ala Lys Phe Ile Pro Leu Arg Ser Arg Thr Arg Ala Gln Ala Tyr Arg
         195                 200                 205
Glu Arg Asp Ile Leu Ala Ala Leu Ser His Pro Leu Val Thr Gly Leu
     210                 215                 220
Leu Asp Gln Phe Glu Thr Arg Lys Thr Leu Ile Leu Ile Leu Glu Leu
225                 230                 235                 240
Cys Ser Ser Glu Glu Leu Leu Asp Arg Leu Tyr Arg Lys Gly Val Val
                 245                 250                 255
Thr Glu Ala Glu Val Lys Val Tyr Ile Gln Gln Leu Val Glu Gly Leu
             260                 265                 270
His Tyr Leu His Ser His Gly Val Leu His Leu Asp Ile Lys Pro Ser
         275                 280                 285
Asn Ile Leu Met Val His Pro Ala Arg Glu Asp Ile Lys Ile Cys Asp
     290                 295                 300
Phe Gly Phe Ala Gln Asn Ile Thr Pro Ala Glu Leu Gln Phe Ser Gln
305                 310                 315                 320
Tyr Gly Ser Pro Glu Phe Val Ser Pro Glu Ile Ile Gln Gln Asn Pro
                 325                 330                 335
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3

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Ser Leu Thr Cys Ser Ser Pro Phe Ala Gly Glu Ser Asp Arg Ala Thr
        355             360             365
Leu Leu Asn Val Leu Glu Gly Arg Val Ser Trp Ser Ser Pro Met Ala
        370             375             380
Ala His Leu Ser Glu Asp Ala Lys Asp Phe Ile Lys Ala Thr Leu Gln
385             390             395             400
Arg Ala Pro Gln Ala Arg Pro Ser Ala Ala Gln Cys Leu Ser His Pro
                405             410             415
Trp Phe Leu Lys Ser Met Pro Ala Glu Glu Ala His Phe Ile Asn Thr
            420             425             430
Lys Gln Leu Lys Phe Leu Leu Ala Arg Ser Arg Trp Gln Arg Ser Leu
        435             440             445
Met Ser Tyr Lys Ser Ile Leu Val Met Arg Ser Ile Pro Glu Leu Leu
    450             455             460
Arg Gly Pro Pro Asp Ser Pro Ser Leu Gly Val Ala Arg His Leu Cys
465             470             475             480
Arg Asp Thr Gly Gly Ser Ser Ser Ser Ser Ser Ser Ser Asp Asn Glu
            485             490             495
Leu Ala Pro Phe Ala Arg Ala Lys Ser Leu Pro Pro Ser Pro Val Thr
            500             505             510
His Ser Pro Leu Leu His Pro Arg Gly Phe Leu Arg Pro Ser Ala Ser
        515             520             525
Leu Pro Glu Glu Ala Glu Ala Ser Glu Arg Ser Thr Glu Ala Pro Ala
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Pro Pro Ala Ser Pro Glu Gly Ala Gly Pro Pro Ala Ala Gln Gly Cys
545             550             555             560
Val Pro Arg His Ser Val Ile Arg Ser Leu Phe Tyr His Gln Ala Gly
            565             570             575
Glu Ser Pro Glu His Gly Ala Leu Ala Pro Gly Ser Arg Arg His Pro
        580             585             590
Ala Arg Arg Arg His Leu Leu Lys Gly Gly Tyr Ile Ala Gly Ala Leu
    595             600             605
Pro Gly Leu Arg Glu Pro Leu Met Glu His Arg Val Leu Glu Glu Glu
    610             615             620
Ala Ala Arg Glu Glu Gln Ala Thr Leu Leu Ala Lys Ala Pro Ser Phe
625             630             635             640
Glu Thr Ala Leu Arg Leu Pro Ala Ser Gly Thr His Leu Ala Pro Gly
            645             650             655
His Ser His Ser Leu Glu His Asp Ser Pro Ser Thr Pro Arg Pro Ser
            660             665             670
Ser Glu Ala Cys Gly Glu Ala Gln Arg Leu Pro Ser Ala Pro Ser Gly
        675             680             685
Gly Ala Pro Ile Arg Asp Met Gly His Pro Gln Gly Ser Lys Gln Leu
    690             695             700
Pro Ser Thr Gly Gly His Pro Gly Thr Ala Gln Pro Glu Arg Pro Ser
705             710             715             720
Pro Asp Ser Pro Trp Gly Gln Pro Ala Pro Phe Cys His Pro Lys Gln
            725             730             735
Gly Ser Ala Pro Gln Glu Gly Cys Ser Pro His Pro Ala Val Ala Pro
            740             745             750
Cys Pro Pro Gly Ser Phe Pro Pro Gly Ser Cys Lys Glu Ala Pro Leu
        755             760             765
Val Pro Ser Ser Pro Phe Leu Gly Gln Pro Gln Ala Pro Pro Ala Pro
    770             775             780
Ala Lys Ala Ser Pro Pro Leu Asp Ser Lys Met Gly Pro Gly Asp Ile
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4

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Ser Leu Pro Gly Arg Pro Lys Pro Gly Pro Cys Ser Ser Pro Gly Ser
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Ser Gln Val Gly Thr Glu Pro Gly Pro Ser Leu Asp Ala Glu Gly Trp
                835                     840                     845
Thr Gln Glu Ala Glu Asp Leu Ser Asp Ser Thr Pro Thr Leu Gln Arg
        850                     855                     860
Pro Gln Glu Gln Val Thr Met Arg Lys Phe Ser Leu Gly Gly Arg Gly
865                     870                     875                     880
Gly Tyr Ala Gly Val Ala Gly Tyr Gly Thr Phe Ala Phe Gly Gly Asp
                885                     890                     895
Ala Gly Gly Met Leu Gly Gln Gly Pro Met Trp Ala Arg Ile Ala Trp
                900                     905                     910
Ala Val Ser Gln Ser Glu Glu Glu Glu Gln Glu Glu Ala Arg Ala Glu
                915                     920                     925
Ser Gln Ser Glu Glu Gln Gln Glu Ala Arg Ala Glu Ser Pro Leu Pro
                930                     935                     940
Gln Val Ser Ala Arg Pro Val Pro Glu Val Gly Arg Ala Pro Thr Arg
945                     950                     955                     960
Ser Ser Pro Glu Pro Thr Pro Trp Glu Asp Ile Gly Gln Val Ser Leu
                965                     970                     975
Val Gln Ile Arg Asp Leu Ser Gly Asp Ala Glu Ala Ala Asp Thr Ile
                980                     985                     990
Ser Leu Asp Ile Ser Glu Val Asp Pro Ala Tyr Leu Asn Leu Ser Asp
                995                     1000                    1005
Leu Tyr Asp Ile Lys Tyr Leu Pro Phe Glu Phe Met Ile Phe Arg Lys
        1010                    1015                    1020
Val Pro Lys Ser Ala Gln Pro Glu Pro Pro Ser Pro Met Ala Glu Glu
1025                    1030                    1035                    1040
Glu Leu Ala Glu Phe Pro Glu Pro Thr Trp Pro Trp Pro Gly Glu Leu
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Gly Pro His Ala Gly Leu Glu Ile Thr Glu Glu Ser Glu Asp Val Asp
                1060                    1065                    1070
Ala Leu Leu Ala Glu Ala Ala Val Gly Arg Lys Arg Lys Trp Ser Ser
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Pro Ser Arg Ser Leu Phe His Phe Pro Gly Arg His Leu Pro Leu Asp
                1090                    1095                    1100
Glu Pro Ala Glu Leu Gly Leu Arg Glu Arg Val Lys Ala Ser Val Glu
1105                    1110                    1115                    1120
His Ile Ser Arg Ile Leu Lys Gly Arg Pro Glu Gly Leu Glu Lys Glu
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Gly Pro Pro Arg Lys Lys Pro Gly Leu Ala Ser Phe Arg Leu Ser Gly
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Leu Lys Ser Trp Asp Arg Ala Pro Thr Phe Leu Arg Glu Leu Ser Asp
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Glu Thr Val Val Leu Gly Gln Ser Val Thr Leu Ala Cys Gln Val Ser
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Ala Gln Pro Ala Ala Gln Ala Thr Trp Ser Lys Asp Gly Ala Pro Leu
1185                    1190                    1195                    1200
Glu Ser Ser Ser Arg Val Leu Ile Ser Ala Thr Leu Lys Asn Phe Gln
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Leu Leu Thr Ile Leu Val Val Val Ala Glu Asp Leu Gly Val Tyr Thr
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Cys Ser Val Ser Asn Ala Leu Gly Thr Val Thr Thr Thr Gly Val Leu
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5

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Val Tyr Ala Asp Gly Val Leu Leu Val Trp Lys Pro Val Glu Ser Tyr
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Gly Pro Val Thr Tyr Ile Val Gln Cys Ser Leu Glu Gly Gly Ser Trp
            1285   1290   1295
Thr Thr Leu Ala Ser Asp Ile Phe Asp Cys Cys Tyr Leu Thr Ser Lys
            1300   1305   1310
Leu Ser Arg Gly Gly Thr Tyr Thr Phe Arg Thr Ala Cys Val Ser Lys
            1315   1320   1325
Ala Gly Met Gly Pro Tyr Ser Ser Pro Ser Glu Gln Val Leu Leu Gly
            1330   1335   1340
Gly Pro Ser His Leu Ala Ser Glu Glu Glu Ser Gln Gly Arg Ser Ala
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Gln Pro Leu Pro Ser Thr Lys Thr Phe Ala Phe Gln Thr Gln Ile Gln
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Arg Gly Arg Phe Ser Val Val Arg Gln Cys Trp Glu Lys Ala Ser Gly
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Arg Ala Leu Ala Ala Lys Ile Ile Pro Tyr His Pro Lys Asp Lys Thr
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Ala Val Leu Arg Glu Tyr Glu Ala Leu Lys Gly Leu Arg His Pro His
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Leu Ala Gln Leu His Ala Ala Tyr Leu Ser Pro Arg His Leu Val Leu
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Ile Leu Glu Leu Cys Ser Gly Pro Glu Leu Leu Pro Cys Leu Ala Glu
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Arg Ala Ser Tyr Ser Glu Ser Glu Val Lys Asp Tyr Leu Trp Gln Met
            1460   1465   1470
Leu Ser Ala Thr Gln Tyr Leu His Asn Gln His Ile Leu His Leu Asp
            1475   1480   1485
Leu Arg Ser Glu Asn Met Ile Ile Thr Glu Tyr Asn Leu Leu Lys Val
    1490   1495   1500
Val Asp Leu Gly Asn Ala Gln Ser Leu Ser Gln Glu Lys Val Leu Pro
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Ser Asp Lys Phe Lys Asp Tyr Leu Glu Thr Met Ala Pro Glu Leu Leu
            1525   1530   1535
Glu Gly Gln Gly Ala Val Pro Gln Thr Asp Ile Trp Ala Ile Gly Val
            1540   1545   1550
Thr Ala Phe Ile Met Leu Ser Ala Glu Tyr Pro Val Ser Ser Glu Gly
            1555   1560   1565
Ala Arg Asp Leu Gln Arg Gly Leu Arg Lys Gly Leu Val Arg Leu Ser
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Arg Cys Tyr Ala Gly Leu Ser Gly Gly Ala Val Ala Phe Leu Arg Ser
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Thr Leu Cys Ala Gln Pro Trp Gly Arg Pro Cys Ala Ser Ser Cys Leu
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Gln Cys Pro Trp Leu Thr Glu Glu Gly Pro Ala Cys Ser Arg Pro Ala
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Pro Val Thr Phe Pro Thr Ala Arg Leu Arg Val Phe Val Arg Asn Arg
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Glu Lys Arg Arg Ala Leu Leu Tyr Lys Arg His Asn Leu Ala Gln Val
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1665

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<211> 5207
<212> DNA
<213> Homo sapiens

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caggtcagtg caaggcctgt gcctgaggtc ggcagggctc ccaccaggag ctctccagag 3000
cccaccccat gggaggacat cgggcaggtc tccctggtgc agatccggga cctgtcaggt 3060
gatgcggagg cggccgacac aatatccctg gacatttccg aggtggaccc cgcctacctc 3120
```
7

```
aacctctcag acctgtacga tatcaagtac ctcccattcg agtttatgat cttcaggaaa 3180
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cgctgagggt cgccccggcc acaccttgg tctccccgct gggggtcgct gcagacgcgc 5160
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```

```
Pro Arg Phe Glu Ser Ile Met Glu Asp Val Glu Val Gly Ala Gly Glu
 1               5                  10                  15
Thr Ala Arg Phe Ala Val Val Val Glu Gly Lys Pro Leu Pro Asp Ile
             20                  25                  30
Met Trp Tyr Lys Asp Glu Val Leu Leu Thr Glu Ser Ser His Val Ser
         35                  40                  45
Phe Val Tyr Glu Glu Asn Glu Cys Ser Leu Val Val Leu Ser Thr Gly
     50                  55                  60
Ala Gln Asp Gly Gly Val Tyr Thr Cys Thr Ala Gln Asn Leu Ala Gly
65                  70                  75                  80
Glu Val Ser Cys Lys Ala Glu Leu Ala Val His Ser Ala Gln Thr Ala
                 85                  90                  95
Met Glu Val Glu Gly Val Gly Glu Asp Glu Asp His Arg Gly Arg Arg
```

8

```
                    100                 105                 110
Leu Ser Asp Phe Tyr Asp Ile His Gln Glu Ile Gly Arg Gly Ala Phe
        115                 120                 125
Ser Tyr Leu Arg Arg Ile Val Glu Arg Ser Ser Gly Leu Glu Phe Ala
        130                 135                 140
Ala Lys Phe Ile Pro Ser Gln Ala Lys Pro Lys Ala Ser Ala Arg Arg
145                 150                 155                 160
Glu Ala Arg Leu Leu Ala Arg Leu Gln His Asp Cys Val Leu Tyr Phe
                165                 170                 175
His Glu Ala Phe Glu Arg Arg Arg Gly Leu Val Ile Val Thr Glu Leu
                180                 185                 190
Cys Thr Glu Glu Leu Leu Glu Arg Ile Ala Arg Lys Pro Thr Val Cys
        195                 200                 205
Glu Ser Glu Ile Arg Ala Tyr Met Arg Gln Val Leu Glu Gly Ile His
        210                 215                 220
Tyr Leu His Gln Ser His Val Leu His Leu Asp Val Lys Pro Glu Asn
225                 230                 235                 240
Leu Leu Val Trp Asp Gly Ala Ala Gly Glu Gln Gln Val Arg Ile Cys
                245                 250                 255
Asp Phe Gly Asn Ala Gln Glu Leu Thr Pro Gly Glu Pro Gln Tyr Cys
                260                 265                 270
Gln Tyr Gly Thr Pro Glu Phe Val Ala Pro Glu Ile Val Asn Gln Ser
                275                 280                 285
Pro Val Ser Gly Val Thr Asp Ile Trp Pro Val Gly Val Val Ala Phe
        290                 295                 300
Leu Cys Leu Thr Gly Ile Ser Pro Phe Val Gly Glu Asn Asp Arg Thr
305                 310                 315                 320
Thr Leu Met Asn Ile Arg Asn Tyr Asn Val Ala Phe Glu Glu Thr Thr
                325                 330                 335
Phe Leu Ser Leu Ser Arg Glu Ala Arg Gly Phe Leu Ile Lys Val Leu
                340                 345                 350
Val Gln Asp Arg Leu Arg Pro Thr Ala Glu Glu Thr Leu Glu His Pro
        355                 360                 365
Trp Phe Lys Thr Gln Ala Lys Gly Ala Glu Val Ser Thr Asp His Leu
        370                 375                 380
Lys Leu Phe Leu Ser Arg Arg Arg Trp Gln Arg Ser Gln Ile Ser Tyr
385                 390                 395                 400
Lys Cys His Leu Val Leu Arg Pro Ile Pro Glu Leu Leu Arg Ala Pro
                405                 410                 415
Pro Glu Arg Val Trp Val Thr Met Pro Arg Arg Pro Pro Pro Ser Gly
                420                 425                 430
Gly Leu Ser Ser Ser Ser Asp Ser Glu Glu Glu Glu Leu Glu Glu Leu
        435                 440                 445
Pro Ser Val Pro Arg Pro Leu Gln Pro Glu Phe Ser Gly Ser Arg Val
        450                 455                 460
Ser Leu Thr Asp Ile Pro Thr Glu Asp Glu Ala Leu Gly Thr Pro Glu
465                 470                 475                 480
Thr Gly Ala Ala Thr Pro Met Asp Trp Gln Glu Gln Gly Arg Ala Pro
                485                 490                 495
Ser Gln Asp Gln Glu Ala Pro Ser Pro Glu Ala Leu Pro Ser Pro Gly
                500                 505                 510
Gln Glu Pro Ala Ala Gly Ala Ser Pro Arg Arg Gly Glu Leu Arg Arg
        515                 520                 525
Gly Ser Ser Ala Glu Ser Ala Leu Pro Arg Ala Gly Pro Arg Glu Leu
        530                 535                 540
Gly Arg Gly Leu His Lys Ala Ala Ser Val Glu Leu Pro Gln Arg Arg
545                 550                 555                 560
```

9

```
Ser Pro Gly Pro Gly Ala Thr Arg Leu Ala Arg Gly Gly Leu Gly Glu
                565                 570                 575
Gly Glu Tyr Ala Gln Arg Leu Gln Ala Leu Arg Gln Arg Leu Leu Arg
            580                 585                 590
Gly Gly Pro Glu Asp Gly Lys Val Ser Gly Leu Arg Gly Pro Leu Leu
        595                 600                 605
Glu Ser Leu Gly Gly Arg Ala Arg Asp Pro Arg Met Ala Arg Ala Ala
    610                 615                 620
Ser Ser Glu Ala Ala Pro His His Gln Pro Pro Leu Glu Asn Arg Gly
625                 630                 635                 640
Leu Gln Lys Ser Ser Ser Phe Ser Gln Gly Glu Ala Glu Pro Arg Gly
                645                 650                 655
Arg His Arg Arg Ala Gly Ala Pro Leu Glu Ile Pro Val Ala Arg Leu
                660                 665                 670
Gly Ala Arg Arg Leu Gln Glu Ser Pro Ser Leu Ser Ala Leu Ser Glu
        675                 680                 685
Ala Gln Pro Ser Ser Pro Ala Arg Pro Ser Ala Pro Lys Pro Ser Thr
    690                 695                 700
Pro Lys Ser Ala Glu Pro Ser Ala Thr Thr Pro Ser Asp Ala Pro Gln
705                 710                 715                 720
Pro Pro Ala Pro Gln Pro Ala Gln Asp Lys Ala Pro Glu Pro Arg Pro
                725                 730                 735
Glu Pro Val Arg Ala Ser Lys Pro Ala Pro Pro Gln Ala Leu Gln
            740                 745                 750
Thr Leu Ala Leu Pro Leu Thr Pro Tyr Ala Gln Ile Ile Gln Ser Leu
            755                 760                 765
Gln Leu Ser Gly His Ala Gln Gly Pro Ser Gln Gly Pro Ala Ala Pro
    770                 775                 780
Pro Ser Glu Pro Lys Pro His Ala Ala Val Phe Ala Arg Val Ala Ser
785                 790                 795                 800
Pro Pro Pro Gly Ala Pro Glu Lys Arg Val Pro Ser Ala Gly Gly Pro
                805                 810                 815
Pro Val Leu Ala Glu Lys Ala Arg Val Pro Thr Val Pro Pro Arg Pro
            820                 825                 830
Gly Ser Ser Leu Ser Ser Ser Ile Glu Asn Leu Glu Ser Glu
            835                 840                 845


<210> 5
<211> 279
<212> PRT
<213> Homo sapiens

<400> 5
Ser Pro Ala Lys Glu Val Val Ser Ser Pro Gly Ser Ser Pro Arg Ser
1                   5                   10                  15
Ser Pro Arg Pro Glu Gly Thr Thr Leu Arg Gln Gly Pro Pro Gln Lys
            20                  25                  30
Pro Tyr Thr Phe Leu Glu Glu Lys Ala Arg Gly Arg Phe Gly Val Val
        35                  40                  45
Arg Ala Cys Arg Glu Asn Ala Thr Gly Arg Thr Phe Val Ala Lys Ile
    50                  55                  60
Val Pro Tyr Ala Ala Glu Gly Lys Pro Arg Val Leu Gln Glu Tyr Glu
65                  70                  75                  80
Val Leu Arg Thr Leu His His Glu Arg Ile Met Ser Leu His Glu Ala
            85                  90                  95
Tyr Ile Thr Pro Arg Tyr Leu Val Leu Ile Ala Glu Ser Cys Gly Asn
```

10

```
                     100                        105                         110
Arg Glu Leu Leu Cys Gly Leu Ser Asp Arg Phe Arg Tyr Ser Glu Asp
         115                        120                         125
Asp Val Ala Thr Tyr Met Val Gln Leu Leu Gln Gly Leu Asp Tyr Leu
    130                        135                         140
His Gly His His Val Leu His Leu Asp Ile Lys Pro Asp Asn Leu Leu
145                        150                         155                         160
Leu Ala Pro Asp Asn Ala Leu Lys Ile Val Asp Phe Gly Ser Ala Gln
                   165                        170                         175
Pro Tyr Asn Pro Gln Ala Leu Arg Pro Leu Gly His Arg Thr Gly Thr
                   180                        185                         190
Leu Glu Phe Met Ala Pro Glu Met Val Lys Gly Glu Pro Ile Gly Ser
                   195                        200                         205
Ala Thr Asp Ile Trp Gly Ala Gly Val Leu Thr Tyr Ile Met Leu Ser
         210                        215                         220
Gly Arg Ser Pro Phe Tyr Glu Pro Asp Pro Gln Glu Thr Glu Ala Arg
225                        230                         235                         240
Ile Val Gly Gly Arg Phe Asp Ala Phe Gln Leu Tyr Pro Asn Thr Ser
                   245                        250                         255
Gln Ser Ala Thr Leu Phe Leu Arg Lys Val Leu Ser Val His Pro Trp
                   260                        265                         270
Ser Arg Pro Ser Ser Cys Leu
         275


<210> 6
<211> 549
<212> PRT
<213> Homo sapiens

<400> 6
Leu Arg Glu Pro Gly Trp Ala Ala Thr Gly Leu Arg Lys Gly Val Gln
  1                   5                        10                          15
His Ile Phe Arg Val Leu Ser Thr Thr Val Lys Ser Ser Ser Lys Pro
                   20                        25                          30
Ser Pro Pro Ser Glu Pro Val Gln Leu Leu Glu His Gly Pro Thr Leu
         35                        40                          45
Glu Glu Ala Pro Ala Met Leu Asp Lys Pro Asp Ile Val Tyr Val Val
         50                        55                          60
Glu Gly Gln Pro Ala Ser Val Thr Val Thr Phe Asn His Val Glu Ala
65                        70                        75                          80
Gln Val Val Trp Arg Ser Cys Arg Gly Ala Leu Leu Glu Ala Arg Ala
                   85                        90                          95
Gly Val Tyr Glu Leu Ser Gln Pro Asp Asp Gln Tyr Cys Leu Arg
                   100                        105                         110
Ile Cys Arg Val Ser Arg Arg Asp Met Gly Ala Leu Thr Cys Thr Ala
         115                        120                         125
Arg Asn Arg His Gly Thr Gln Thr Cys Ser Val Thr Leu Glu Leu Ala
    130                        135                         140
Glu Ala Pro Arg Phe Glu Ser Ile Met Glu Asp Val Glu Val Gly Ala
145                        150                         155                         160
Gly Glu Thr Ala Arg Phe Ala Val Val Val Glu Gly Lys Pro Leu Pro
                   165                        170                         175
Asp Ile Met Trp Tyr Lys Asp Glu Val Leu Leu Thr Glu Ser Ser His
                   180                        185                         190
Val Ser Phe Val Tyr Glu Glu Asn Glu Cys Ser Leu Val Val Leu Ser
         195                        200                         205
```

11

```
Thr Gly Ala Gln Asp Gly Gly Val Tyr Thr Cys Thr Ala Gln Asn Leu
    210             215             220
Ala Gly Glu Val Ser Cys Lys Ala Glu Leu Ala Val His Ser Ala Gln
225             230             235             240
Thr Ala Met Glu Val Glu Gly Val Gly Glu Asp Glu Asp His Arg Gly
            245             250             255
Arg Arg Leu Ser Asp Phe Tyr Asp Ile His Gln Glu Ile Gly Arg Gly
            260             265             270
Ala Phe Ser Tyr Leu Arg Arg Ile Val Glu Arg Ser Ser Gly Leu Glu
            275             280             285
Phe Ala Ala Lys Phe Ile Pro Ser Gln Ala Lys Pro Lys Ala Ser Ala
    290             295             300
Arg Arg Glu Ala Arg Leu Leu Ala Arg Leu Gln His Asp Cys Val Leu
305             310             315             320
Tyr Phe His Glu Ala Phe Glu Arg Arg Arg Gly Leu Val Ile Val Thr
            325             330             335
Glu Leu Cys Thr Glu Glu Leu Leu Glu Arg Ile Ala Arg Lys Pro Thr
            340             345             350
Val Cys Glu Ser Glu Ile Arg Ala Tyr Met Arg Gln Val Leu Glu Gly
            355             360             365
Ile His Tyr Leu His Gln Ser His Val Leu His Leu Asp Val Lys Pro
    370             375             380
Glu Asn Leu Leu Val Trp Asp Gly Ala Ala Gly Glu Gln Gln Val Arg
385             390             395             400
Ile Cys Asp Phe Gly Asn Ala Gln Glu Leu Thr Pro Gly Glu Pro Gln
            405             410             415
Tyr Cys Gln Tyr Gly Thr Pro Glu Phe Val Ala Pro Glu Ile Val Asn
            420             425             430
Gln Ser Pro Val Ser Gly Val Thr Asp Ile Trp Pro Val Gly Val Val
            435             440             445
Ala Phe Leu Cys Leu Thr Gly Ile Ser Pro Phe Val Gly Glu Asn Asp
    450             455             460
Arg Thr Thr Leu Met Asn Ile Arg Asn Tyr Asn Val Ala Phe Glu Glu
465             470             475             480
Thr Thr Phe Leu Ser Leu Ser Arg Glu Ala Arg Gly Phe Leu Ile Lys
            485             490             495
Val Leu Val Gln Asp Arg Leu Arg Pro Thr Ala Glu Glu Thr Leu Glu
            500             505             510
His Pro Trp Phe Lys Thr Gln Ala Lys Gly Ala Glu Val Ser Thr Asp
    515             520             525
His Leu Lys Leu Phe Leu Ser Arg Arg Arg Trp Gln Arg Ser Gln Ile
    530             535             540
Ser Tyr Lys Cys His
545


<210> 7
<211> 250
<212> PRT
<213> Homo sapiens

<400> 7
Tyr Thr Phe Leu Glu Glu Lys Ala Arg Gly Arg Phe Gly Val Val Arg
 1              5               10              15
Ala Cys Arg Glu Asn Ala Thr Gly Arg Thr Phe Val Ala Lys Ile Val
            20              25              30
Pro Tyr Ala Ala Glu Gly Lys Pro Arg Val Leu Gln Glu Tyr Glu Val
```

12

```
                 35                        40                        45
Leu Arg Thr Leu His His Glu Arg Ile Met Ser Leu His Glu Ala Tyr
    50                      55                      60
Ile Thr Pro Arg Tyr Leu Val Leu Ile Ala Glu Ser Cys Gly Asn Arg
65                      70                      75                      80
Glu Leu Leu Cys Gly Leu Ser Asp Arg Phe Arg Tyr Ser Glu Asp Asp
                85                      90                      95
Val Ala Thr Tyr Met Val Gln Leu Leu Gln Gly Leu Asp Tyr Leu His
               100                     105                     110
Gly His His Val Leu His Leu Asp Ile Lys Pro Asp Asn Leu Leu Leu
               115                     120                     125
Ala Pro Asp Asn Ala Leu Lys Ile Val Asp Phe Gly Ser Ala Gln Pro
   130                     135                     140
Tyr Asn Pro Gln Ala Leu Arg Pro Leu Gly His Arg Thr Gly Thr Leu
145                     150                     155                     160
Glu Phe Met Ala Pro Glu Met Val Lys Gly Glu Pro Ile Gly Ser Ala
               165                     170                     175
Thr Asp Ile Trp Gly Ala Gly Val Leu Thr Tyr Ile Met Leu Ser Gly
               180                     185                     190
Arg Ser Pro Phe Tyr Glu Pro Asp Pro Gln Glu Thr Glu Ala Arg Ile
   195                     200                     205
Val Gly Gly Arg Phe Asp Ala Phe Gln Leu Tyr Pro Asn Thr Ser Gln
   210                     215                     220
Ser Ala Thr Leu Phe Leu Arg Lys Val Leu Ser Val His Pro Trp Ser
225                     230                     235                     240
Arg Pro Ser Ser Cys Leu Ser Val Cys His
               245                     250


<210> 8
<211> 245
<212> PRT
<213> Homo sapiens

<400> 8
Pro Arg Lys Asp Lys Gly Leu Ser Pro Pro Asn Leu Ser Ala Ser Val
1                   5                      10                      15
Gln Glu Glu Leu Gly His Gln Tyr Val Arg Ser Glu Ser Asp Phe Pro
               20                      25                      30
Pro Val Phe His Ile Lys Leu Lys Asp Gln Val Leu Leu Glu Gly Glu
           35                      40                      45
Ala Ala Thr Leu Leu Cys Leu Pro Ala Ala Cys Pro Ala Pro His Ile
   50                      55                      60
Ser Trp Met Lys Asp Lys Lys Ser Leu Arg Ser Glu Pro Ser Val Ile
65                      70                      75                      80
Ile Val Ser Cys Lys Asp Gly Arg Gln Leu Leu Ser Ile Pro Arg Ala
               85                      90                      95
Gly Lys Arg His Ala Gly Leu Tyr Glu Cys Ser Ala Thr Asn Val Leu
               100                     105                     110
Gly Ser Ile Thr Ser Ser Cys Thr Val Ala Val Ala Arg Val Pro Gly
   115                     120                     125
Lys Leu Ala Pro Pro Glu Val Thr Gln Thr Tyr Gln Asp Thr Ala Leu
   130                     135                     140
Val Leu Trp Lys Pro Gly Asp Ser Arg Ala Pro Cys Thr Tyr Thr Leu
145                     150                     155                     160
Glu Arg Arg Val Asp Gly Glu Ser Val Trp His Pro Val Ser Ser Gly
               165                     170                     175
```

```
Ile Pro Asp Cys Tyr Tyr Asn Val Thr His Leu Pro Val Gly Val Thr
            180                 185                 190
Val Arg Phe Arg Val Ala Cys Ala Asn Arg Ala Gly Gln Gly Pro Phe
    195                 200                 205
Ser Asn Ser Ser Glu Lys Val Phe Val Arg Gly Thr Gln Asp Ser Ser
    210                 215                 220
Ala Val Pro Ser Ala Ala His Gln Glu Ala Pro Val Thr Ser Arg Pro
225                 230                 235                 240
Ala Arg Ala Arg Pro
                245


<210> 9
<211> 111
<212> PRT
<213> Homo sapiens

<400> 9
Leu Glu Asp Val Glu Val Leu Glu Gly Arg Ala Ala Arg Phe Asp Cys
1               5                   10                  15
Lys Ile Ser Gly Thr Pro Pro Val Val Thr Trp Thr His Phe Gly
            20                  25                  30
Cys Pro Met Glu Glu Ser Glu Asn Leu Arg Leu Arg Gln Asp Gly Gly
        35                  40                  45
Leu His Ser Leu His Ile Ala His Val Gly Ser Glu Asp Glu Gly Leu
    50                  55                  60
Tyr Ala Val Ser Ala Val Asn Thr His Gly Gln Ala His Cys Ser Ala
65                  70                  75                  80
Gln Leu Tyr Val Glu Glu Pro Arg Thr Ala Ala Ser Gly Pro Ser Ser
                85                  90                  95
Lys Leu Glu Lys Met Pro Ser Ile Pro Glu Glu Pro Glu Gln Gly
            100                 105                 110


<210> 10
<211> 198
<212> PRT
<213> Homo sapiens

<400> 10
Pro Asp Phe Leu Arg Pro Leu Gln Asp Leu Glu Val Gly Leu Ala Lys
1               5                   10                  15
Glu Ala Met Leu Glu Cys Gln Val Thr Gly Leu Pro Tyr Pro Thr Ile
            20                  25                  30
Ser Trp Phe His Asn Gly His Arg Ile Gln Ser Ser Asp Asp Arg Arg
            35                  40                  45
Met Thr Gln Tyr Arg Asp Val His Arg Leu Val Phe Pro Ala Val Gly
    50                  55                  60
Pro Gln His Ala Gly Val Tyr Lys Ser Val Ile Ala Asn Lys Leu Gly
65                  70                  75                  80
Lys Ala Ala Cys Tyr Ala His Leu Tyr Val Thr Asp Val Val Pro Gly
                85                  90                  95
Pro Pro Asp Gly Ala Pro Gln Val Val Ala Val Thr Gly Arg Met Val
            100                 105                 110
Thr Leu Thr Trp Asn Pro Pro Arg Ser Leu Asp Met Ala Ile Asp Pro
    115                 120                 125
Asp Ser Leu Thr Tyr Thr Val Gln His Gln Val Leu Gly Ser Asp Gln
```

14

```
              130                    135                    140
Trp Thr Ala Leu Val Thr Gly Leu Arg Glu Pro Gly Trp Ala Ala Thr
145                    150                    155                    160
Gly Leu Arg Lys Gly Val Gln His Ile Phe Arg Val Leu Ser Thr Thr
                  165                    170                    175
Val Lys Ser Ser Ser Lys Pro Ser Pro Pro Ser Glu Pro Val Gln Leu
              180                    185                    190
Leu Glu His Gly Pro Thr
              195


<210> 11
<211> 101
<212> PRT
<213> Homo sapiens

<400> 11
Ala Pro Leu Phe Thr Arg Leu Leu Glu Asp Val Glu Val Leu Glu Gly
  1                 5                    10                    15
Arg Ala Ala Arg Phe Asp Cys Lys Ile Ser Gly Thr Pro Pro Pro Val
                  20                    25                    30
Val Thr Trp Thr His Phe Gly Cys Pro Met Glu Glu Ser Glu Asn Leu
          35                    40                    45
Arg Leu Arg Gln Asp Gly Gly Leu His Ser Leu His Ile Ala His Val
          50                    55                    60
Gly Ser Glu Asp Glu Gly Leu Tyr Ala Val Ser Ala Val Asn Thr His
65                    70                    75                    80
Gly Gln Ala His Cys Ser Ala Gln Leu Tyr Val Glu Glu Pro Arg Thr
                  85                    90                    95
Ala Ala Ser Gly Pro
              100


<210> 12
<211> 195
<212> PRT
<213> Homo sapiens

<400> 12
Arg Gly Thr Gln Asp Ser Ser Ala Val Pro Ser Ala Ala His Gln Glu
  1                 5                    10                    15
Ala Pro Val Thr Ser Arg Pro Ala Arg Ala Arg Pro Pro Asp Ser Pro
                  20                    25                    30
Thr Ser Leu Ala Pro Pro Leu Ala Pro Ala Ala Pro Thr Pro Pro Ser
          35                    40                    45
Val Thr Val Ser Pro Ser Ser Pro Pro Thr Pro Pro Ser Gln Ala Leu
          50                    55                    60
Ser Ser Leu Lys Ala Val Gly Pro Pro Pro Gln Thr Pro Pro Arg Arg
65                    70                    75                    80
His Arg Gly Leu Gln Ala Ala Arg Pro Ala Glu Pro Thr Leu Pro Ser
                  85                    90                    95
Thr His Val Thr Pro Ser Glu Pro Lys Pro Phe Val Leu Asp Thr Gly
              100                    105                    110
Thr Pro Ile Pro Ala Ser Thr Pro Gln Gly Val Lys Pro Val Ser Ser
              115                    120                    125
Ser Thr Pro Val Tyr Val Val Thr Ser Phe Val Ser Ala Pro Pro Ala
          130                    135                    140
```

15

```
Pro Glu Pro Pro Ala Pro Glu Pro Pro Pro Glu Pro Thr Lys Val Thr
145                 150                 155                 160
Val Gln Ser Leu Ser Pro Ala Lys Glu Val Val Ser Ser Pro Gly Ser
                165                 170                 175
Ser Pro Arg Ser Ser Pro Arg Pro Glu Gly Thr Thr Leu Arg Gln Gly
            180                 185                 190
Pro Pro Gln
        195
```

<210> 13
<211> 90
<212> PRT
<213> Homo sapiens

<400> 13
```
Pro Asp Phe Leu Arg Pro Leu Gln Asp Leu Glu Val Gly Leu Ala Lys
 1               5                  10                  15
Glu Ala Met Leu Glu Cys Gln Val Thr Gly Leu Pro Tyr Pro Thr Ile
                20                  25                  30
Ser Trp Phe His Asn Gly His Arg Ile Gln Ser Ser Asp Asp Arg Arg
        35                  40                  45
Met Thr Gln Tyr Arg Asp Val His Arg Leu Val Phe Pro Ala Val Gly
        50                  55                  60
Pro Gln His Ala Gly Val Tyr Lys Ser Val Ile Ala Asn Lys Leu Gly
65                  70                  75                  80
Lys Ala Ala Cys Tyr Ala His Leu Tyr Val
                85                  90
```

<210> 14
<211> 414
<212> PRT
<213> Homo sapiens

<400> 14
```
Pro Pro Glu Phe Val Ile Pro Leu Ser Glu Val Thr Cys Glu Thr Gly
 1               5                  10                  15
Glu Thr Val Val Leu Arg Cys Arg Val Cys Gly Arg Pro Lys Ala Ser
                20                  25                  30
Ile Thr Trp Lys Gly Pro Glu His Asn Thr Leu Asn Asn Asp Gly His
        35                  40                  45
Tyr Ser Ile Ser Tyr Ser Asp Leu Gly Glu Ala Thr Leu Lys Ile Val
        50                  55                  60
Gly Val Thr Thr Glu Asp Asp Gly Ile Tyr Thr Cys Ile Ala Val Asn
65                  70                  75                  80
Asp Met Gly Ser Ala Ser Ser Ser Ala Ser Leu Arg Val Leu Gly Pro
                85                  90                  95
Gly Met Asp Gly Ile Met Val Thr Trp Lys Asp Asn Phe Asp Ser Phe
            100                 105                 110
Tyr Ser Glu Val Ala Glu Leu Gly Arg Gly Arg Phe Ser Val Val Lys
            115                 120                 125
Lys Cys Asp Gln Lys Gly Thr Lys Arg Ala Val Ala Thr Lys Phe Val
        130                 135                 140
Asn Lys Lys Leu Met Lys Arg Asp Gln Val Thr His Glu Leu Gly Ile
145                 150                 155                 160
Leu Gln Ser Leu Gln His Pro Leu Leu Val Gly Leu Leu Asp Thr Phe
```

16

```
                      165                      170                      175
Glu Thr Pro Thr Ser Tyr Ile Leu Val Leu Glu Met Ala Asp Gln Gly
              180                      185                      190
Arg Leu Leu Asp Cys Val Val Arg Trp Gly Ser Leu Thr Glu Gly Lys
          195                      200                      205
Ile Arg Ala His Leu Gly Glu Val Leu Glu Ala Val Arg Tyr Leu His
      210                      215                      220
Asn Cys Arg Ile Ala His Leu Asp Leu Lys Pro Glu Asn Ile Leu Val
  225                      230                      235                      240
Asp Glu Ser Leu Ala Lys Pro Thr Ile Lys Leu Ala Asp Phe Gly Asp
              245                      250                      255
Ala Val Gln Leu Asn Thr Thr Tyr Tyr Ile His Gln Leu Leu Gly Asn
          260                      265                      270
Pro Glu Phe Ala Ala Pro Glu Ile Ile Leu Gly Asn Pro Val Ser Leu
          275                      280                      285
Thr Ser Asp Thr Trp Ser Val Gly Val Leu Thr Tyr Val Leu Leu Ser
      290                      295                      300
Gly Val Ser Pro Phe Leu Asp Asp Ser Val Glu Glu Thr Cys Leu Asn
  305                      310                      315                      320
Ile Cys Arg Leu Asp Phe Ser Phe Pro Asp Asp Tyr Phe Lys Gly Val
              325                      330                      335
Ser Gln Lys Ala Lys Glu Phe Val Cys Phe Leu Leu Gln Glu Asp Pro
          340                      345                      350
Ala Lys Arg Pro Ser Ala Ala Leu Ala Leu Gln Glu Gln Trp Leu Gln
          355                      360                      365
Ala Gly Asn Gly Arg Ser Thr Gly Val Leu Asp Thr Ser Arg Leu Thr
          370                      375                      380
Ser Phe Ile Glu Arg Arg Lys His Gln Asn Asp Val Arg Pro Ile Arg
  385                      390                      395                      400
Ser Ile Lys Asn Phe Leu Gln Ser Arg Leu Leu Pro Arg Val
                  405                      410
```

<210> 15
<211> 274
<212> PRT
<213> Homo sapiens

<400> 15
```
Glu Leu Gly Arg Gly Arg Phe Ser Val Val Lys Lys Cys Asp Gln Lys
  1                   5                      10                      15
Gly Thr Lys Arg Ala Val Ala Thr Lys Phe Val Asn Lys Lys Leu Met
              20                      25                      30
Lys Arg Asp Gln Val Thr His Glu Leu Gly Ile Leu Gln Ser Leu Gln
          35                      40                      45
His Pro Leu Leu Val Gly Leu Leu Asp Thr Phe Glu Thr Pro Thr Ser
      50                      55                      60
Tyr Ile Leu Val Leu Glu Met Ala Asp Gln Gly Arg Leu Leu Asp Cys
  65                      70                      75                      80
Val Val Arg Trp Gly Ser Leu Thr Glu Gly Lys Ile Arg Ala His Leu
              85                      90                      95
Gly Glu Val Leu Glu Ala Val Arg Tyr Leu His Asn Cys Arg Ile Ala
          100                      105                      110
His Leu Asp Leu Lys Pro Glu Asn Ile Leu Val Asp Glu Ser Leu Ala
          115                      120                      125
Lys Pro Thr Ile Lys Leu Ala Asp Phe Gly Asp Ala Val Gln Leu Asn
      130                      135                      140
```

17

```
Thr Thr Tyr Tyr Ile His Gln Leu Leu Gly Asn Pro Glu Phe Ala Ala
145             150             155             160
Pro Glu Ile Ile Leu Gly Asn Pro Val Ser Leu Thr Ser Asp Thr Trp
            165             170             175
Ser Val Gly Val Leu Thr Tyr Val Leu Leu Ser Gly Val Ser Pro Phe
            180             185             190
Leu Asp Asp Ser Val Glu Glu Thr Cys Leu Asn Ile Cys Arg Leu Asp
        195             200             205
Phe Ser Phe Pro Asp Asp Tyr Phe Lys Gly Val Ser Gln Lys Ala Lys
    210             215             220
Glu Phe Val Cys Phe Leu Leu Gln Glu Asp Pro Ala Lys Arg Pro Ser
225             230             235             240
Ala Ala Leu Ala Leu Gln Glu Gln Trp Leu Gln Ala Gly Asn Gly Arg
            245             250             255
Ser Thr Gly Val Leu Asp Thr Ser Arg Leu Thr Ser Phe Ile Glu Arg
        260             265             270
Arg Lys
```

<210> 16
<211> 141
<212> PRT
<213> Homo sapiens

<400> 16
```
Gly Lys Arg Glu Gly Lys Leu Glu Asn Gly Tyr Arg Lys Ser Arg Glu
  1             5             10              15
Gly Leu Ser Asn Lys Val Ser Val Lys Leu Leu Asn Pro Asn Tyr Ile
            20             25              30
Tyr Asp Val Pro Pro Glu Phe Val Ile Pro Leu Ser Glu Val Thr Cys
        35             40              45
Glu Thr Gly Glu Thr Val Val Leu Arg Cys Arg Val Cys Gly Arg Pro
    50             55              60
Lys Ala Ser Ile Thr Trp Lys Gly Pro Glu His Asn Thr Leu Asn Asn
65             70             75              80
Asp Gly His Tyr Ser Ile Ser Tyr Ser Asp Leu Gly Glu Ala Thr Leu
            85             90              95
Lys Ile Val Gly Val Thr Thr Glu Asp Asp Gly Ile Tyr Thr Cys Ile
            100            105             110
Ala Val Asn Asp Met Gly Ser Ala Ser Ser Ser Ala Ser Leu Arg Val
            115            120             125
Leu Gly Pro Gly Met Asp Gly Ile Met Val Thr Trp Lys
    130             135             140
```

<210> 17
<211> 196
<212> PRT
<213> Homo sapiens

<400> 17
```
Gly Gly Ala Pro Ser Gly Gly Ser Gly His Ser Gly Gly Pro Ser Ser
  1             5             10              15
Cys Gly Gly Ala Pro Ser Thr Ser Arg Ser Arg Pro Ser Arg Ile Pro
            20             25              30
Gln Pro Val Arg His His Pro Pro Val Leu Val Ser Ser Ala Ala Ser
```

```
            35                    40                   45
Ser Gln Ala Glu Ala Asp Lys Met Ser Gly Thr Ser Thr Pro Gly Pro
    50                  55                  60
Ser Leu Pro Pro Pro Gly Ala Ala Pro Glu Ala Gly Pro Ser Ala Pro
65                  70                  75                  80
Ser Arg Arg Pro Pro Gly Ala Asp Ala Glu Gly Ser Glu Arg Glu Ala
                85                  90                  95
Glu Pro Ile Pro Lys Met Lys Val Leu Glu Ser Pro Arg Lys Gly Ala
            100                 105                 110
Ala Asn Ala Ser Gly Ser Ser Pro Asp Ala Pro Ala Lys Asp Ala Arg
        115                 120                 125
Ala Ser Leu Gly Thr Leu Pro Leu Gly Lys Pro Arg Ala Gly Ala Ala
    130                 135                 140
Ser Pro Leu Asn Ser Pro Leu Ser Ser Ala Val Pro Ser Leu Gly Lys
145                 150                 155                 160
Glu Pro Phe Pro Pro Ser Ser Pro Leu Gln Lys Gly Gly Ser Phe Trp
                165                 170                 175
Ser Ser Ile Pro Ala Ser Pro Ala Ser Arg Pro Gly Ser Phe Thr Phe
                180                 185                 190
Pro Gly Asp Ser
            195


<210> 18
<211> 298
<212> PRT
<213> Homo sapiens

<400> 18
Gln Lys Val Ser Asp Phe Tyr Asp Ile Glu Glu Arg Leu Gly Ser Gly
  1                 5                  10                 15
Lys Phe Gly Gln Val Phe Arg Leu Val Glu Lys Lys Thr Arg Lys Val
            20                  25                  30
Trp Ala Gly Lys Phe Phe Lys Ala Tyr Ser Ala Lys Glu Lys Glu Asn
        35                  40                  45
Ile Arg Gln Glu Ile Ser Ile Met Asn Cys Leu His His Pro Lys Leu
    50                  55                  60
Val Gln Cys Val Asp Ala Phe Glu Glu Lys Ala Asn Ile Val Met Val
65                  70                  75                  80
Leu Glu Ile Val Ser Gly Gly Glu Leu Phe Glu Arg Ile Ile Asp Glu
                85                  90                  95
Asp Phe Glu Leu Thr Glu Arg Glu Cys Ile Lys Tyr Met Arg Gln Ile
            100                 105                 110
Ser Glu Gly Val Glu Tyr Ile His Lys Gln Gly Ile Val His Leu Asp
        115                 120                 125
Leu Lys Pro Glu Asn Ile Met Cys Val Asn Lys Thr Gly Thr Arg Ile
    130                 135                 140
Lys Leu Ile Asp Phe Gly Leu Ala Arg Arg Leu Glu Asn Ala Gly Ser
145                 150                 155                 160
Leu Lys Val Leu Phe Gly Thr Pro Glu Phe Val Ala Pro Glu Val Ile
                165                 170                 175
Asn Tyr Glu Pro Ile Ser Tyr Ala Thr Asp Met Trp Ser Ile Gly Val
            180                 185                 190
Ile Cys Tyr Ile Leu Val Ser Gly Leu Ser Pro Phe Met Gly Asp Asn
        195                 200                 205
Asp Asn Glu Thr Leu Ala Asn Val Thr Ser Ala Thr Trp Asp Phe Asp
    210                 215                 220
```

19

Asp Glu Ala Phe Asp Glu Ile Ser Asp Asp Ala Lys Asp Phe Ile Ser
225   230   235   240
Asn Leu Leu Lys Lys Asp Met Lys Asn Arg Leu Asp Cys Thr Gln Cys
                245   250   255
Leu Gln His Pro Trp Leu Met Lys Asp Thr Lys Asn Met Glu Ala Lys
                260   265   270
Lys Leu Ser Lys Asp Arg Met Lys Lys Tyr Met Ala Arg Arg Lys Trp
                275   280   285
Gln Lys Thr Gly Asn Ala Val Arg Ala Ile
        290   295

<210> 19
<211> 508
<212> PRT
<213> Homo sapiens

<400> 19
Gly Thr Glu Ser Asp Ala Thr Val Lys Lys Lys Pro Ala Pro Lys Thr
    1   5   10   15
Pro Pro Lys Ala Ala Met Pro Pro Gln Ile Ile Gln Phe Pro Glu Asp
                20   25   30
Gln Lys Val Arg Ala Gly Glu Ser Val Glu Leu Phe Gly Lys Val Thr
            35   40   45
Gly Thr Gln Pro Ile Thr Cys Thr Trp Met Lys Phe Arg Lys Gln Ile
    .50   55   60
Gln Asp Ser Glu His Ile Lys Val Glu Asn Ser Glu Asn Gly Ser Lys
65   70   75   80
Leu Thr Ile Leu Ala Ala Arg Gln Glu His Cys Gly Cys Tyr Thr Leu
                85   90   95
Leu Val Glu Asn Lys Leu Gly Ser Arg Gln Ala Gln Val Asn Leu Thr
                100   105   110
Val Val Asp Lys Pro Asp Pro Pro Ala Gly Thr Pro Cys Ala Ser Asp
            115   120   125
Ile Arg Ser Ser Ser Leu Thr Leu Ser Trp Tyr Gly Ser Ser Tyr Asp
        130   135   140
Gly Gly Ser Ala Val Gln Ser Tyr Ser Ile Glu Ile Trp Asp Ser Ala
145   150   155   160
Asn Lys Thr Trp Lys Glu Leu Ala Thr Cys Arg Ser Thr Ser Phe Asn
                165   170   175
Val Gln Asp Leu Leu Pro Asp His Glu Tyr Lys Phe Arg Val Arg Ala
                180   185   190
Ile Asn Val Tyr Gly Thr Ser Glu Pro Ser Gln Glu Ser Glu Leu Thr
                195   200   205
Thr Val Gly Glu Lys Pro Glu Glu Pro Lys Met Lys Trp Arg Cys Gln
    210   215   220
Thr Asp Asp Glu Lys Glu Pro Glu Val Asp Tyr Arg Thr Val Thr Ile
225   230   235   240
Asn Thr Glu Gln Lys Val Ser Asp Phe Tyr Asp Ile Glu Glu Arg Leu
                245   250   255
Gly Ser Gly Lys Phe Gly Gln Val Phe Arg Leu Val Glu Lys Lys Thr
                260   265   270
Arg Lys Val Trp Ala Gly Lys Phe Phe Lys Ala Tyr Ser Ala Lys Glu
            275   280   285
Lys Glu Asn Ile Arg Gln Glu Ile Ser Ile Met Asn Cys Leu His His
    290   295   300
Pro Lys Leu Val Gln Cys Val Asp Ala Phe Glu Glu Lys Ala Asn Ile

20

```
             305                        310                        315                        320
Val Met Val Leu Glu Ile Val Ser Gly Gly Glu Leu Phe Glu Arg Ile
                     325                        330                        335
Ile Asp Glu Asp Phe Glu Leu Thr Glu Arg Glu Cys Ile Lys Tyr Met
                     340                        345                        350
Arg Gln Ile Ser Glu Gly Val Glu Tyr Ile His Lys Gln Gly Ile Val
                     355                        360                        365
His Leu Asp Leu Lys Pro Glu Asn Ile Met Cys Val Asn Lys Thr Gly
           370                        375                        380
Thr Arg Ile Lys Leu Ile Asp Phe Gly Leu Ala Arg Arg Leu Glu Asn
385                        390                        395                        400
Ala Gly Ser Leu Lys Val Leu Phe Gly Thr Pro Glu Phe Val Ala Pro
                     405                        410                        415
Glu Val Ile Asn Tyr Glu Pro Ile Ser Tyr Ala Thr Asp Met Trp Ser
                     420                        425                        430
Ile Gly Val Ile Cys Tyr Ile Leu Val Ser Gly Leu Ser Pro Phe Met
                     435                        440                        445
Gly Asp Asn Asp Asn Glu Thr Leu Ala Asn Val Thr Ser Ala Thr Trp
           450                        455                        460
Asp Phe Asp Asp Glu Ala Phe Asp Glu Ile Ser Asp Asp Ala Lys Asp
465                        470                        475                        480
Phe Ile Ser Asn Leu Leu Lys Lys Asp Met Lys Asn Arg Leu Asp Cys
                     485                        490                        495
Thr Gln Cys Leu Gln His Pro Trp Leu Met Lys Asp
           500                        505


<210> 20
<211> 106
<212> PRT
<213> Homo sapiens

<400> 20
Pro Tyr Phe Ser Lys Thr Ile Arg Asp Leu Glu Val Val Glu Gly Ser
  1                 5                      10                      15
Ala Ala Arg Phe Asp Cys Lys Ile Glu Gly Tyr Pro Asp Pro Glu Val
                 20                      25                      30
Val Trp Phe Lys Asp Asp Gln Ser Ile Arg Glu Ser Arg His Phe Gln
                 35                      40                      45
Ile Asp Tyr Asp Glu Asp Gly Asn Cys Ser Leu Ile Ile Ser Asp Val
     50                      55                      60
Cys Gly Asp Asp Asp Ala Lys Tyr Thr Cys Lys Ala Val Asn Ser Leu
65                      70                      75                      80
Gly Glu Ala Thr Cys Thr Ala Glu Leu Ile Val Glu Thr Met Glu Glu
                 85                      90                      95
Gly Glu Gly Glu Gly Glu Glu Glu Glu
              100                      105


<210> 21
<211> 96
<212> PRT
<213> Homo sapiens

<400> 21
Pro Pro Lys Phe Ala Thr Lys Leu Gly Arg Val Val Val Lys Glu Gly
  1                 5                      10                      15
```

Gln Met Gly Arg Phe Ser Cys Lys Ile Thr Gly Arg Pro Gln Pro Gln
            20   25   30
Val Thr Trp Leu Lys Gly Asn Val Pro Leu Gln Pro Ser Ala Arg Val
            35   40   45
Ser Val Ser Glu Lys Asn Gly Met Gln Val Leu Glu Ile His Gly Val
            50   55   60
Asn Gln Asp Asp Val Gly Val Tyr Thr Cys Leu Val Val Asn Gly Ser
65   70   75   80
Gly Lys Ala Ser Met Ser Ala Glu Leu Ser Ile Gln Gly Leu Asp Ser
                85   90   95

<210> 22
<211> 96
<212> PRT
<213> Homo sapiens

<400> 22
Pro Pro Lys Phe Ala Thr Lys Leu Gly Arg Val Val Val Lys Glu Gly
1   5   10   15
Gln Met Gly Arg Phe Ser Cys Lys Ile Thr Gly Arg Pro Gln Pro Gln
            20   25   30
Val Thr Trp Leu Lys Gly Asn Val Pro Leu Gln Pro Ser Ala Arg Val
            35   40   45
Ser Val Ser Glu Lys Asn Gly Met Gln Val Leu Glu Ile His Gly Val
            50   55   60
Asn Gln Asp Asp Val Gly Val Tyr Thr Cys Leu Val Val Asn Gly Ser
65   70   75   80
Gly Lys Ala Ser Met Ser Ala Glu Leu Ser Ile Gln Gly Leu Asp Ser
                85   90   95

<210> 23
<211> 88
<212> PRT
<213> Homo sapiens

<400> 23
Pro Lys Phe Ala Thr Lys Leu Gly Arg Val Val Val Lys Glu Gly Gln
1   5   10   15
Met Gly Arg Phe Ser Cys Lys Ile Thr Gly Arg Pro Gln Pro Gln Val
            20   25   30
Thr Trp Leu Lys Gly Asn Val Pro Leu Gln Pro Ser Ala Arg Val Ser
            35   40   45
Val Ser Glu Lys Asn Gly Met Gln Val Leu Glu Ile His Gly Val Asn
            50   55   60
Gln Asp Asp Val Gly Val Tyr Thr Cys Leu Val Val Asn Gly Ser Gly
65   70   75   80
Lys Ala Ser Met Ser Ala Glu Leu
                85

<210> 24
<211> 94
<212> PRT
<213> Homo sapiens

<400> 24

```
Ala Pro Ser Phe Ser Ser Val Leu Lys Asp Cys Ala Val Ile Glu Gly
1               5                   10                  15
Gln Asp Phe Val Leu Gln Cys Ser Val Arg Gly Thr Pro Val Pro Arg
            20                  25                  30
Ile Thr Trp Leu Leu Asn Gly Gln Pro Ile Gln Tyr Ala Arg Ser Thr
            35                  40                  45
Cys Glu Ala Gly Val Ala Glu Leu His Ile Gln Asp Ala Leu Pro Glu
    50                  55                  60
Asp His Gly Thr Tyr Thr Cys Leu Ala Glu Asn Ala Leu Gly Gln Val
65                  70                  75                  80
Ser Cys Ser Ala Trp Val Thr Val His Glu Lys Lys Ser Ser
            85                  90
```

<400> 25

```
Lys Lys Ser Ser Arg Lys Ser Glu Tyr Leu Leu Pro Val Ala Pro Ser
1               5                   10                  15
Lys Pro Thr Ala Pro Ile Phe Leu Gln Gly Leu Ser Asp Leu Lys Val
            20                  25                  30
Met Asp Gly Ser Gln Val Thr Met Thr Val Gln Val Ser Gly Asn Pro
            35                  40                  45
Pro Pro Glu Val Ile Trp Leu His Asn Gly Asn Glu Ile Gln Glu Ser
    50                  55                  60
Glu Asp Phe His Phe Glu Gln Arg Gly Thr Gln His Ser Leu Trp Ile
65                  70                  75                  80
Gln Glu Val Phe Pro Glu Asp Thr Gly Thr Tyr Thr Cys Glu Ala Trp
                85                  90                  95
Asn Ser Ala Gly Glu Val Arg Thr Gln Ala Val Leu Thr Val Gln Glu
            100                 105                 110
```

<210> 26
<211> 100
<212> PRT
<213> Homo sapiens

<400> 26

```
Ser Met Pro Leu Thr Glu Ala Pro Ala Phe Ile Leu Pro Pro Arg Asn
1               5                   10                  15
Leu Cys Ile Lys Glu Gly Ala Thr Ala Lys Phe Glu Gly Arg Val Arg
            20                  25                  30
Gly Tyr Pro Glu Pro Gln Val Thr Trp His Arg Asn Gly Gln Pro Ile
            35                  40                  45
Thr Ser Gly Gly Arg Phe Leu Leu Asp Cys Gly Ile Arg Gly Thr Phe
    50                  55                  60
Ser Leu Val Ile His Ala Val His Glu Glu Asp Arg Gly Lys Tyr Thr
65                  70                  75                  80
Cys Glu Ala Thr Asn Gly Ser Gly Ala Arg Gln Val Thr Val Glu Leu
                85                  90                  95
Thr Val Glu Gly
            100
```

23

<210> 27
<211> 174
<212> PRT
<213> Homo sapiens

<400> 27
Pro Ser Gly Glu Glu Arg Lys Arg Pro Ala Pro Pro Arg Pro Ala Thr
1   5   10   15
Phe Pro Thr Arg Gln Pro Gly Leu Gly Ser Gln Asp Val Val Ser Lys
            20   25   30
Ala Ala Asn Arg Arg Ile Pro Met Glu Gly Gln Arg Asp Ser Ala Phe
            35   40   45
Pro Lys Phe Glu Ser Lys Pro Gln Ser Gln Glu Val Lys Glu Asn Gln
    50   55   60
Thr Val Lys Phe Arg Cys Glu Val Ser Gly Ile Pro Lys Pro Glu Val
65   70   75   80
Ala Trp Phe Leu Glu Gly Thr Pro Val Arg Arg Gln Glu Gly Ser Ile
                85   90   95
Glu Val Tyr Glu Asp Ala Gly Ser His Tyr Leu Cys Leu Leu Lys Ala
            100   105   110
Arg Thr Arg Asp Ser Gly Thr Tyr Ser Cys Thr Ala Ser Asn Ala Gln
            115   120   125
Gly Gln Val Ser Cys Ser Trp Thr Leu Gln Val Glu Arg Leu Ala Val
            130   135   140
Met Glu Val Ala Pro Ser Phe Ser Ser Val Leu Lys Asp Cys Ala Val
145   150   155   160
Ile Glu Gly Gln Asp Phe Val Leu Gln Cys Ser Val Arg Gly
                165   170

<210> 28
<211> 97
<212> PRT
<213> Homo sapiens

<400> 28
Pro Ala Phe Lys Gln Lys Leu Gln Asp Val His Val Ala Glu Gly Lys
1   5   10   15
Lys Leu Leu Leu Gln Cys Gln Val Ser Ser Asp Pro Pro Ala Thr Ile
            20   25   30
Ile Trp Thr Leu Asn Gly Lys Thr Leu Lys Thr Thr Lys Phe Ile Ile
            35   40   45
Leu Ser Gln Glu Gly Ser Leu Cys Ser Val Ser Ile Glu Lys Ala Leu
    50   55   60
Leu Glu Asp Arg Gly Leu Tyr Lys Cys Val Ala Lys Asn Asp Ala Gly
65   70   75   80
Gln Ala Glu Cys Ser Cys Gln Val Thr Val Asp Asp Ala Pro Ala Ser
                85   90   95
Glu

<210> 29
<211> 124
<212> PRT

<400> 29
Glu Ser Gln Gly Thr Ala Pro Ala Phe Lys Gln Lys Leu Gln Asp Val
1   5   10   15
His Val Ala Glu Gly Lys Lys Leu Leu Leu Gln Cys Gln Val Ser Ser
            20   25   30
Asp Pro Pro Ala Thr Ile Ile Trp Thr Leu Asn Gly Lys Thr Leu Lys
        35   40   45
Thr Thr Lys Phe Ile Ile Leu Ser Gln Glu Gly Ser Leu Cys Ser Val
        50   55   60
Ser Ile Glu Lys Ala Leu Leu Glu Asp Arg Gly Leu Tyr Lys Cys Val
65   70   75   80
Ala Lys Asn Asp Ala Gly Gln Ala Glu Cys Ser Cys Gln Val Thr Val
                85   90   95
Asp Asp Ala Pro Ala Ser Glu Asn Thr Lys Ala Pro Glu Met Lys Ser
            100   105   110
Arg Arg Pro Lys Ser Ser Leu Pro Pro Val Leu Gly
            115   120

<210> 30
<211> 87
<212> PRT
<213> Homo sapiens

<400> 30
Ala Pro Ala Phe Ile Leu Pro Pro Arg Asn Leu Cys Ile Lys Glu Gly
1   5   10   15
Ala Thr Ala Lys Phe Glu Gly Arg Val Arg Gly Tyr Pro Glu Pro Gln
            20   25   30
Val Thr Trp His Arg Asn Gly Gln Pro Ile Thr Ser Gly Gly Arg Phe
        35   40   45
Leu Leu Asp Cys Gly Ile Arg Gly Thr Phe Ser Leu Val Ile His Ala
        50   55   60
Val His Glu Glu Asp Arg Gly Lys Tyr Thr Cys Glu Ala Thr Asn Gly
65   70   75   80
Ser Gly Ala Arg Gln Val Thr
                85

<210> 31
<211> 119
<212> PRT
<213> Homo sapiens

<400> 31
Ser Asn Ala Gln Gly Gln Val Ser Cys Ser Trp Thr Leu Gln Val Glu
1   5   10   15
Arg Leu Ala Val Met Glu Val Ala Pro Ser Phe Ser Ser Val Leu Lys
            20   25   30
Asp Cys Ala Val Ile Glu Gly Gln Asp Phe Val Leu Gln Cys Ser Val
        35   40   45
Arg Gly Thr Pro Val Pro Arg Ile Thr Trp Leu Leu Asn Gly Gln Pro
        50   55   60
Ile Gln Tyr Ala Arg Ser Thr Cys Glu Ala Gly Val Ala Glu Leu His
65   70   75   80

Ile Gln Asp Ala Leu Pro Glu Asp His Gly Thr Tyr Thr Cys Leu Ala
                85   90   95
Glu Asn Ala Leu Gly Gln Val Ser Cys Ser Ala Trp Val Thr Val His
                100   105   110
Glu Lys Lys Ser Ser Arg Lys
            115

<210> 32
<211> 98
<212> PRT
<213> Homo sapiens

<400> 32
Gly Gln Arg Asp Ser Ala Phe Pro Lys Phe Glu Ser Lys Pro Gln Ser
1   5   10   15
Gln Glu Val Lys Glu Asn Gln Thr Val Lys Phe Arg Cys Glu Val Ser
                20   25   30
Gly Ile Pro Lys Pro Glu Val Ala Trp Phe Leu Glu Gly Thr Pro Val
            35   40   45
Arg Arg Gln Glu Gly Ser Ile Glu Val Tyr Glu Asp Ala Gly Ser His
        50   55   60
Tyr Leu Cys Leu Leu Lys Ala Arg Thr Arg Asp Ser Gly Thr Tyr Ser
65   70   75   80
Cys Thr Ala Ser Asn Ala Gln Gly Gln Val Ser Cys Ser Trp Thr Leu
                85   90   95
Gln Val

<210> 33
<211> 82
<212> PRT
<213> Homo sapiens

<400> 33
Val Thr Ala Ser Leu Gly Gln Ser Val Leu Ile Ser Cys Ala Ile Ala
1   5   10   15
Gly Asp Pro Phe Pro Thr Val His Trp Leu Arg Asp Gly Lys Ala Leu
                20   25   30
Cys Lys Asp Thr Gly His Phe Glu Val Leu Gln Asn Glu Asp Val Phe
            35   40   45
Thr Leu Val Leu Lys Lys Val Gln Pro Trp His Ala Gly Gln Tyr Glu
        50   55   60
Ile Leu Leu Lys Asn Arg Val Gly Glu Cys Ser Cys Gln Val Ser Leu
65   70   75   80
Met Leu

<210> 34
<211> 89
<212> PRT
<213> Homo sapiens

<400> 34
Pro Tyr Phe Ser Lys Thr Ile Arg Asp Leu Glu Val Val Glu Gly Ser

26

```
 1                   5                   10                  15
Ala Ala Arg Phe Asp Cys Lys Ile Glu Gly Tyr Pro Asp Pro Glu Val
            20                  25                  30
Val Trp Phe Lys Asp Asp Gln Ser Ile Arg Glu Ser Arg His Phe Gln
        35                  40                  45
Ile Asp Tyr Asp Glu Asp Gly Asn Cys Ser Leu Ile Ile Ser Asp Val
    50                  55                  60
Cys Gly Asp Asp Asp Ala Lys Tyr Thr Cys Lys Ala Val Asn Ser Leu
65                  70                  75                  80
Gly Glu Ala Thr Cys Thr Ala Glu Leu
            85
```